

温芝元,曹乐平.基于补偿模糊神经网络的脐橙不同病虫害图像识别[J].农业工程学报,2012,28(11):152-157

基于补偿模糊神经网络的脐橙不同病虫害图像识别

Image recognition of navel orange diseases and insect pests based on compensatory fuzzy neural networks

投稿时间: 2011-11-24 最后修改时间: 2012-05-18

中文关键词: [图像识别](#), [模糊神经网络](#), [水果](#), [病虫害](#), [机器视觉](#), [脐橙](#)

英文关键词: [image recognition](#) [fuzzy neural network](#) [fruits](#) [plant diseases and insect pests](#) [machine vision](#) [navel orange](#)

基金项目:湖南省科技计划项目(项目编号: 20011NK3005)

作者	单位
温芝元	1. 湖南农业大学理学院, 长沙 410128
曹乐平	2. 湖南生物机电职业技术学院教务处, 长沙 410127

摘要点击次数: **261**

全文下载次数: **125**

中文摘要:

为了开发脐橙不同病虫害的通用机器识别技术,对病虫害危害后的脐橙图像进行蓝色分量去背景,改进型分水岭算法提取病虫害为害状边界,据此边界对原彩色图像中的为害状进行标记,以标记区红色、绿色、蓝色分量表征病虫害为害状的颜色特征,为害状边界分形维数表征病虫害为害状的形状特征,将这4个特征值作为补偿模糊神经网络输入,建立补偿模糊神经网络脐橙病虫害识别模型,识别脐橙病虫害。4种病虫害及机械损伤果的平均正确识别率为85.51%,该方法可用于脐橙病虫害识别。

英文摘要:

In order to develop a universal machine vision algorithm to identify disease and pests of navel orange, blue component of images of navel orange with disease and insect pests was processed with background removed to detect and extract the boundary of disease and insect pests symptoms with improved watershed algorithm. With this boundary the disease and insect pests areas of the original color image were marked. Red, green, and blue components in marked area were used to characterize the color features, and boundary fractal dimension of disease and insect pests area was taken as the shape feature. With the four feature values as compensatory fuzzy neural networks (CFNN) inputs, the CFNN mapper was established to identify diseases and insect pests. The test results showed that the average recognition correctness rate was up to 85.51% for four kinds of plant diseases and insect pests and mechanical damage. This method can be used to identify navel oranges plant diseases and insect pests.

[查看全文](#) [下载PDF阅读器](#)

[关闭](#)

您是第**5164609**位访问者

主办单位: 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100125 Email: tcsae@tcsae.org
本系统由北京勤云科技发展有限公司设计